

# *Wahlenbergia celata* (Campanulaceae), a new species from central Queensland

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## Summary

Forster, Paul I. (2000). *Wahlenbergia celata* (Campanulaceae), a new species from central Queensland. *Austrobaileya* 5(4): 661–665. A new species *Wahlenbergia celata* P.I.Forst. is described and illustrated. It belongs to the group of fleshy-rooted, lithophytic *Wahlenbergia* species that is endemic in Queensland and the extreme north-east of New South Wales. Four species are now recognised in this group with new distributional data presented for the previously described species. An identification key to the species in this group is provided.

Keywords: Campanulaceae, *Wahlenbergia*-Australia; *Wahlenbergia celata*, *Wahlenbergia glabra*, *Wahlenbergia islensis*, *Wahlenbergia scopulicola*

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## Introduction

A comprehensive revision of the genus *Wahlenbergia* in Australia was provided by Smith (1992) wherein some twenty-six species were recognised, including several new taxa. Smith (1992) did not formalise an infrageneric classification for *Wahlenbergia* but did recognise a number of informal groups based on shared character states.

The first of these groups he called the “*W. scopulicola* Group” and defined it by the shared characters of being “Densely tufted perennials with much-branched stems and short inflorescences, typically with only solitary flowers...” with “deeply campanulate corollas and hemispherical capsules”. Three species were included in this group, namely *W. glabra* P.J.Sm., *W. islensis* P.J.Sm. and *W. scopulicola* Carolin ex P.J.Sm., all endemic to southern Queensland, although *W. scopulicola* occurs in New South Wales by about 50 m at Mt Lindesay. An additional shared character state for these three species is the fleshy, tuberous tap-root that anchors the plant into crevices in the rocky substrates inhabited by all of them. Unlike the remaining, generally wide-

ranging species of Australian *Wahlenbergia*, the species of this group are restricted endemics in cliffline microsites.

Ongoing fieldwork in Queensland has revealed a number of additional populations of *Wahlenbergia* that can be assigned to Smith’s Group 1. One undescribed species is present in this material and is described in this paper. There are now a number of additional collections of the previously described species from new localities not seen by Smith (1992) and data is also presented on these.

## Taxonomy

### Materials and methods

This revision is primarily based on collections held at BRI (as at early 1999) and CANB (examined prior to 1993). All species have been examined in the field. Description format is derived from that of Smith (1992).

**1. *Wahlenbergia celata* P.I.Forst., sp. nov.** *W. scopulicola* Carolin ex P.J. Sm. affinis, sed sepalis lineari-lanceolatis 2.5–4 mm longis (adversum sepala angusti-triangularia 1.5–2.2 mm longa), corollae

lobis multo brevioribus angustioribusque, 2–3 mm×2–2.2 mm (adversum lobos ellipticos ad ovatos et 5–9 mm×2.5–3.5 mm) et lobis stigmaticis longioribus ab ea differens. **Typus:** Queensland. LEICHHARDT DISTRICT: Bluebell Rock, State Forest 34, Ruined Castle Creek catchment, 7 Nov 1998, *P.I. Forster* PIF23930 & *R. Booth & R. Crane* (holo: BRI; iso: BRI, K, MEL).

Perennial herb with a thickened taproot, tufted, many-stemmed. Stems 5–25 cm long, decumbent or pendent, crowded, much-branched, sparsely hirsute; hairs to 0.5 mm long. Leaves alternate, rarely subopposite, elliptic, obovate or oblanceolate, becoming predominantly oblanceolate towards the top of the stems, 4–30 mm long, 0.8–7 mm wide, apex obtuse to acute, base cuneate, petiole for up to 2 mm, sparsely hirsute; margins entire or irregularly toothed, slightly recurved. Flowers solitary; pedicels 10–50 mm long, hirsute in lower half, + glabrous in upper half, without bracteoles. Hypanthium hemispherical, 1.5–2.2 mm long, 1.5–1.8 mm diameter, glabrous. Sepals 5, erect to slightly spreading, linear-lanceolate, 2.5–4 mm long, 0.4–1 mm wide at base, with scattered indumentum. Corolla deeply campanulate, blue; puberulous inside at base, otherwise glabrous; tube 4–5 mm long, 3–4 mm diameter, longer than the sepals; lobes 5, triangular, the apex acute, 2–3 mm long, 2–2.2 mm wide at the base. Stamens 5, filaments 1–1.2 mm long, white; anthers 2–2.5 mm long.

Ovary 3-locular. Style 4–5 mm long, 3-fid, indistinctly constricted 1/2 to 2/3 below from the stigmatic lobes and covered with pollen presenting hairs above the constriction; 0 or 1 gland below each stigmatic cleft; stigmatic lobes 1.2–1.5 mm long. Capsule hemispherical, 3–5 mm long, 3–4 mm diameter, glabrous. Seeds oblong, 0.4–0.5 mm long, c. 0.2 mm diameter, tan-brown. Fig. 1.

**Additional specimens examined:** Queensland. LEICHHARDT DISTRICT: [all NW of Taroom] Palmgrove N.P., Nov 1998, *Forster* PIF23734 & *Booth* (BRI, MEL, NSW); S.F.35 [now S.F.50], upper reaches of Sandy Creek, Nov 1998, *Forster* PIF23900 & *Booth* (BRI); Ralphs Big Rock, S.F.34 [now S.F.50], Ruined Castle Creek catchment, Nov 1998, *Forster* PIF23934 et al. (AD, BRI, K, MEL, NSW); Glenhaughton Gorge, Expedition N.P., Sep 1999, *Forster* PIF24792 et al. (AD, BRI, MEL); Glenhaughton Gorge, Expedition N.P., Sep 1999, *Forster* PIF24829 et al. (BRI, MEL).

**Distribution and habitat:** *Wahlenbergia celata* has been found to date at five localities with four in close proximity in the Bigge Range north-west of Taroom. Plants grow on heavily weathered sandstone cliffines on large isolated monoliths or in deeply incised gorges. The surrounding eucalypt dominated woodland comprises admixtures of *Corymbia citriodora* (Hook.) K.D.Hill & L.A.S.Johnson, *C. watsoniana* (F.Muell.) K.D.Hill & L.A.S.Johnson, *Eucalyptus apothalassica* L.A.S.Johnson & K.D.Hill, *E. fibrosa* F.Muell., *E. tenuipes* (Maiden & Blakely) Blakely & C.T.White and *Lysicarpus angustifolius* (Hook.) Druce. Species in close

**Key to the fleshy-rooted, lithophytic species of *Wahlenbergia* in Queensland and New South Wales**

- 1. Leaves hairy, petiolate ..... 2  
    Leaves glabrous, sessile ..... 3
- 2. Sepals linear-lanceolate, 2.5–4 mm long; corolla lobes triangular with acute tip,  
    2–3 mm long, 2–2.2 mm wide at base; stigmatic lobes 1.2–1.5 mm long ..... **W. celata**  
    Sepals narrow-triangular, 1.5–2.2 mm long; corolla lobes elliptic to ovate  
    with acute tip, 5–9 mm long, 2.5–3.5 mm wide at base; stigmatic lobes  
    0.5–1.3 mm long ..... **W. scopulicola**
- 3. Corolla lobes 5.5–9 mm long; leaves subopposite, narrowly elliptic,  
    2.5–4 mm wide ..... **W. glabra**  
    Corolla lobes 3.5–5.5 mm long; leaves all alternate, linear, < 1.5 mm wide ..... **W. islensis**

association on the rockfaces include *Conospermum sphacelatum* Hook., *Leptospermum sericatum* Lindl., *Logania cordifolia* Hook. and *Mitrasacme oasena* Dunlop. At one locality *W. celata* is closely sympatric with *W. islensis* but seems to be restricted to moister microsites.

**Notes:** *Wahlenbergia celata* is perhaps most closely allied to *W. scopulicola* that is endemic to the Scenic Rim of south-east Queensland (Forster 1994). The two species are disjunct by c. 500 km and differ primarily in floral characters. *W. celata* has sepals that are linear-lanceolate and 2.5–4 mm long; corolla lobes that are triangular with an acute tip, 2–3 mm long and 2–2.2 mm wide at the base; and stigmatic lobes 1.2–1.5 mm long. By comparison *W. scopulicola* has sepals that are narrow-triangular and 1.5–2.2 mm long; corolla lobes that are elliptic to ovate with an acute tip, 5–9 mm long and 2.5–3.5 mm wide at the base; and stigmatic lobes 0.5–1.3 mm long. Smith (1992) stated that *W. scopulicola* has sepals up to 3 mm long, but I have not seen this extreme on the available material. *Wahlenbergia celata* also has considerably less hairy foliage than plants of *W. scopulicola* from the type locality (Mt Lindesay) and an additional site at Mt Cougal. A population of *W. scopulicola* at Bushrangers Cave near Numinbah has only sparsely hairy foliage and was initially segregated as a separate entity (Henderson 1997), but does not differ in other characters from the type material. Hence the density of foliage indumentum does not appear to be a useful character to differentiate between *W. celata* and *W. scopulicola*.

**Etymology:** The specific epithet is derived from the Latin word *celatus* (concealed) and refers to the primary habitat of this species in incised sandstone gorges.

**Conservation status:** The known localities are contained within two National Parks and one State Forest at pristine sites unlikely to be disturbed in the foreseeable future. On present knowledge the species is restricted in occurrence but locally abundant. The area is poorly explored and contains many hectares of such habitat and it is highly likely that the

species will be found to be quite common in the area. No conservation coding is recommended.

**2. *Wahlenbergia glabra*** P.J.Sm., *Teloepa* 5: 113 (1992). **Type:** Queensland MORETON DISTRICT: near the summit of Mt Cordeaux, Dec 1973, *P.J.Smith* 55 (holo: NSW n.v.).

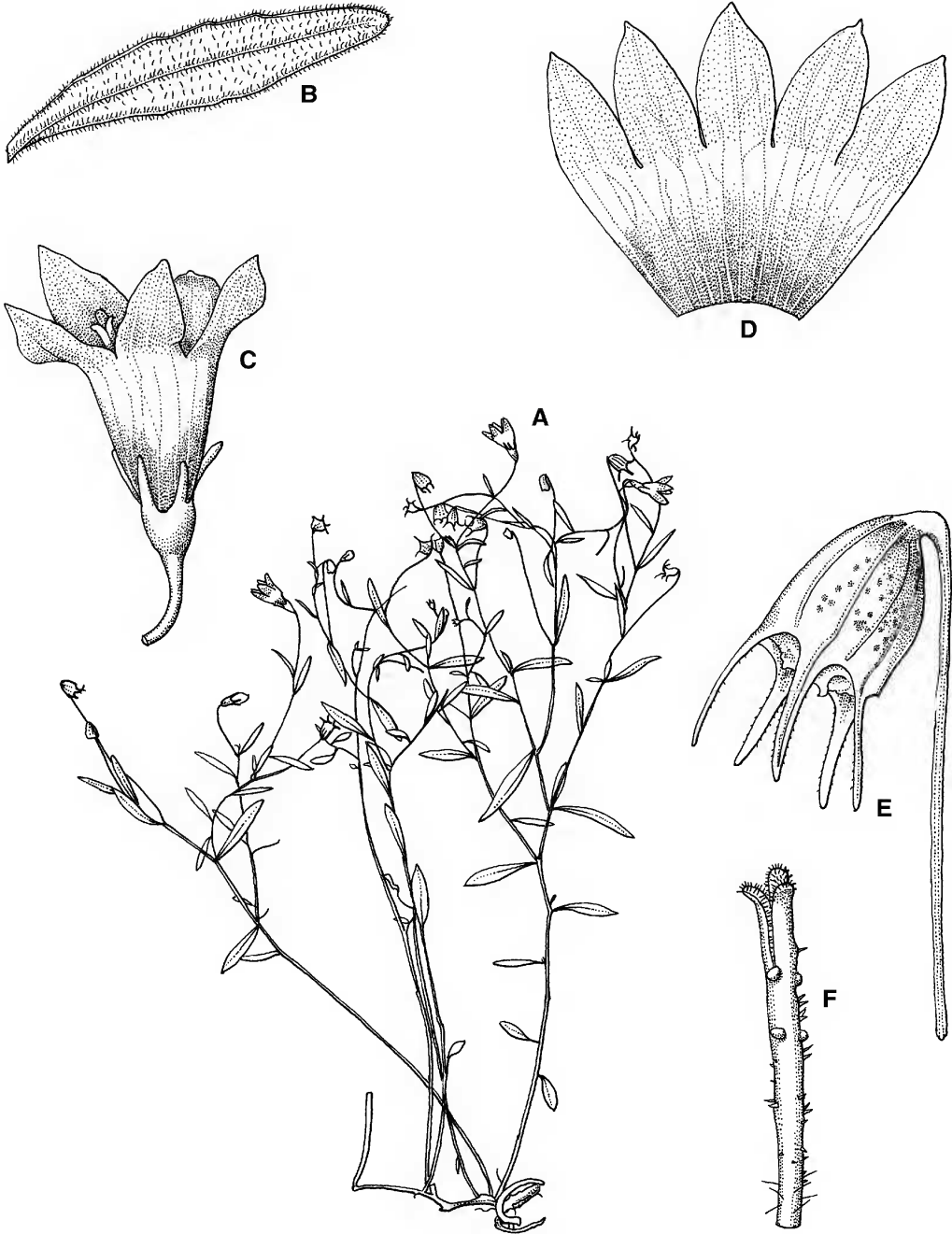
**Recent (post 1990) specimens examined:** Queensland. DARLING DOWNS DISTRICT: The Steamers, E of Emu Vale, May 1990, *Bean* 1539 (BRI, NSW); Mt Huntley, western slopes, Oct 1992, *Forster* PIF11841 *et al.* (BRI, MEL); Condamine Gorge, near Paddys Knob, Mar 1993, *Sparshott* KS41 & *Sparshott* (BRI). MORETON DISTRICT: Mt Mitchell, Cunningham's Gap, Aug 1992, *Forster* PIF11097 & *Reilly* (BRI, MEL, NSW); Mt Cordeaux, Aug 1992, *Forster* PIF11181 & *Reilly* (BRI); Wilson's Peak, Main Range N.P., Oct 1992, *Halford* Q1537 (BRI); Southern summit of Mt Doubletop, Main Range S of Cunninghams Gap, Aug 1994, *Leiper* AQ632132 (BRI).

**Notes:** *W. glabra* has been found at a number of additional localities within the range as previously described by Smith (1992). It is endemic to the "Scenic Rim" of south-east Queensland (Forster 1994). *Wahlenbergia glabra* does not co-occur with *W. scopulicola* and is found in more westerly parts of the Scenic Rim on trachyte substrates.

**3. *Wahlenbergia islensis*** P.J.Sm., *Teloepa* 5: 114 (1992). **Type:** Queensland. LEICARDT DISTRICT: near Isla Gorge, 13 Sep 1974, *P.J.Smith* 132 (holo: NSW n.v.).

**Recent (post 1990) specimens examined:** Queensland. LEICARDT DISTRICT: Robinson Gorge N.P. [now Expedition N.P.], Sep 1992, *Forster* PIF11290 & *Sharpe* (AD, BRI, MEL, NSW); Robinson Gorge, Expedition N.P., Sep 1995, *Forster* PIF17787 & *Figg* (BRI); Bluebell Rock, S.F.34 [now S.F.50], Ruined Castle Creek catchment, NW of Taroom, Nov 1998, *Forster* PIF23927 *et al.* (AD, BRI, MEL, NE, NSW); Bat Cave Gorge, Palmgrove N.P., Sep 1999, *Forster* PIF24728 & *Booth* (BRI, MEL); Turpentine Gorge, Palmgrove N.P., Sep 1999, *Forster* PIF24770 & *Booth* (BRI, MEL).

**Notes:** *W. islensis* is now known from several more easterly localities in the Expedition and Bigge Ranges than known to Smith (1992). This species has been found only on sandstone cliffines. At Bluebell Rock the species is closely sympatric with *W. celata* but occurs in drier microsites.



**Fig. 1.** *Wahlenbergia celata*. A. habit of flowering and fruiting plant  $\times 0.5$ . B. single leaf showing indumentum  $\times 5$ . C. flower  $\times 5$ . D. expanded corolla  $\times 5$ . E. fruit  $\times 5$ . F. style  $\times 10$ . A, B, E from Forster PIF23930 et al. (BRI); C, D, F from Forster PIF23934 et al. (BRI). Del. W. Smith.

**4. *Wahlenbergia scopulicola*** Carolin ex P.J.Sm., *Telopea* 5: 111 (1992). **Type:** Queensland/New South Wales. MORETON/NORTH COAST: Mt Lindesay, 31 May 1959, R.C. Carolin 964 (holo: NSW n.v.).

*Wahlenbergia* sp. (Numinbah P.I.Forster +PIF13868) (Henderson 1997).

**Recent (post 1990) specimens examined:** **Queensland.** MORETON DISTRICT: The Cougals, Springbrook N.P., Mt Cougal section, Oct 1994, Forster PIF15854 & Leiper (BRI); Above the "Bushrangers" cave, lower slopes of Mt Wagawn, Nov 1992, Leiper AQ548270 (BRI); Bushrangers Cave, 1 km W of Numinbah Border gate, Sep1993, Forster PIF13868 & Leiper (BRI). **New South Wales.** S. face of Mt Lindesay, Nov 1990, Halford 369 (BRI, MEL, NSW).

**Notes:** *W. scopulicola* is endemic to the Scenic Rim of south-east Queensland (Forster 1994). This species was known to Smith (1992) only from Mt Lindesay, but has now been found at two more easterly localities in the Scenic Rim. *Wahlenbergia scopulicola* occurs on rhyolite substrates and is more easterly in its distribution than *W. glabra*.

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